Rio Tinto

Kennecott Eagle Minerals
Jonathan C. Cherry, P.E.
General Manager
504 Spruce Street
Ishpeming, Michigan 49849
(906) 486-1257

February 6, 2009

Ms. Kate Lederle
Michigan Department of Environmental Quality
Land and Water Management Division
Permit Consolidation Unit
525 West Allegan Street
P.O. Box 30204
Lansing, MI 48909-7704

Dear Ms. Lederle:

Re: **File Number 08-52-0104-P, Humboldt Mill Joint Permit Application for an Inland Lakes and Streams Permit, Kennecott Eagle Minerals Company**

In a letter dated January 7, 2009 a request for clarification/information was received from the Land and Water Management Division (LWMD) titled "Application Correction Request." In fulfillment of your request, please find attached, answers to your questions, additional engineering detail and supporting documentation.

Should you have any questions please don't hesitate to contact me at 906-486-1257.

Sincerely,

Jon Cherry
General Manager

cc: Hal Fitch, MDEQ
Joe Derocha, Humboldt Township w/o attachment
Steve Powers, Marquette County w/o attachment
Gene Smary, Warner Norcross and Judd, LLC
Jim Norine, M3, LLC
Steve Donohue, Foth Infrastructure & Environment, LLC
Vicky Peacey, Kennecott Eagle Minerals Company
Alicia Duex, Kennecott Eagle Minerals Company

File: EC-Humboldt-ILSA-Corres to MDEQ

1. Provide the average dimensions of the entire fill proposed fill area in section 10A.

KEMC Response: The application section 10A has been updated in the fields for fill dimension and this version has been attached for insertion into the permit application (Attachment A). The fill area is the basin where tailings will be placed and is irregular in every dimension. The 2,440 foot length of the fill area lies along Section A-A' on Figure 2-3. The width of 501 feet in Section 10A is an average width, representing the theoretical width of the total volume of tailings along the 2,440 foot length at a depth of 53 feet, which is an average depth evaluated along Section A-A'.

Figure 2-1 has been updated to include the surface area of the top of the tailings for each phase. Figures 2-3 and 2-4 now include a table with the following information regarding the proposed tailings fill for Sections A-A', B-B', C-C' and D-D':

- *Elevation at the deepest point of the proposed tailings for each section,*
- *Elevation at the top of the tailings,*
- *Depth of tailings at the deepest location along each section,*
- *Width at the widest location along each section,*

Updated Figures 2-3 and 2-4 are included in Attachment B for insertion into the permit application.

2. Provide the pipe diameters and invert elevations in Section 10J

KEMC Response: *The Humboldt Mill Tailings Disposal Facility (HTDF) has four intake/outlet pipes:*

- *The waste water treatment plant (WWTP) influent pipe*
- *The waste water treatment plant (WWTP) effluent pipe*
- *Mill process water intake pipe*
- *Tailings discharge pipe*

There was not enough space within section 10J to include the pipe diameters and elevations for all four intake and outlet pipes. This information has been included on Figures 1-3, 2-1 and 2-5 (Attachment C).

3. Provide a legible black and white 8 ½ x 11 copy of Figure 1-3 for public notice purposes.

KEMC Response: *A black and white 8 ½ x 11 copy of the revised Figure 1-3 is included within Attachment C.*

4. Figure 2-3 and 2-4 location maps appear to have the phases reversed. Please clarify.

KEMC Response: *The insets for both figures had the labels for Phases 1 and 3 reversed. Those figures have been revised and copies of Figures 2-3 and 2-4 are contained within Attachment B.*

5. On Figure 2-5 show the dimensions of the wall and berm.

KEMC Response: *Dimensions for the cutoff wall and berm have been added to Figure 2-5. An updated version of Figure 2-5 is included in Attachment C.*

6. Provide black and white cross sections of the cutoff wall / slurry wall and berm showing boundaries of adjacent wetland, width of work area, and structure dimensions. Include height, base and top widths of the berm. Indicate length of the proposed berm. Enclosed is a site plan for reference.

KEMC Response: *Three new drawings have been attached which provide all the information requested in Question 6:*

- *Figure 2-5a Humboldt Tailings Disposal Facility Civil Cut Off Wall*
- *Figure 2-5b Humboldt Tailings Disposal Facility Civil Cut Off Wall Civil Sections 1*
- *Figure 2-5c Humboldt Tailings Disposal Facility Civil Cut Off Wall Civil Sections 2*

Figure 2-5a shows the cutoff wall and berm details in detail, profile and plan view, Figure 2-5b provides information for Sections A-A' and B-B' and Figure 2-5c contains Sections C-C', D-D' and E-E'. Copies of all three new figures are contained in Attachment D.

Sections G-G' and F-F' are contained within Figure 2-6b (Attachment E) and are further described in the answer to question 8 below.

7. Provide a site specific profile and cross section of the stationary water intake structure showing

a. **The waters edge**
b. **Location, elevation and dimensions of the proposed structure**
c. **Location and dimensions of proposed excavation/dredge and/or fill areas**
d. **Location and dimensions of excavation/dredge spoil areas**
e. **Existing and proposed grades**
f. **And cross section scale**

KEMC Response: *Updated drawings of Figure 2-6 have been created consistent with the sample drawing provided in your January 7, 2009 letter. Please replace the original Figure 2-6 with Figure 2-6a and Figure 2-6b showing the stationary water intake*

structure and the outlet discharge into the wetland. Figures 2-6a and 2-6b are contained within Attachment E.

Figure 2-6b shows the waters edge of the HTDF, location, elevation and dimensions of the intake structure, grades and a cross section scale. Items 7c and 7d are not applicable since dredging, excavation, spoils or fill are not currently planned.

8. Provide a site specific profile and cross section of the outlet discharge into the wetland showing

a. Wetland edge/boundaries
b. Location, dimensions and discharge elevation of the proposed structure
c. Location and dimensions of proposed excavation/dredge and/or fill areas
d. Location and dimensions of excavation/dredge spoil areas
e. Existing and proposed grades
f. And cross section scale

KEMC Response: *Updated drawings of Figure 2-6 have been created consistent with the sample drawing provided in your January 7, 2009 letter. Please replace the original Figure 2-6 with Figure 2-6a and Figure 2-6b showing the stationary water intake structure and the outlet discharge into the wetland. Figures 2-6a and 2-6b are contained within Attachment E.*

Figure 2-6a shows the wetland boundary/edge, location, dimensions and discharge elevation of the outlet structure, grades and a cross section scale. Items 8c and 8d are not applicable since dredging, excavation, spoils or fill are not currently planned.

Figure 2-6a also provides information for Section G-G' and F-F'.

9. An emergency spillway was not noted on the site plans. Indicate where water will be directed in an emergency or explain why an emergency spillway is not proposed.

KEMC Response: *HTDF effluent will be treated at the WWTP and discharged per the requirements of an NPDES permit. In the unlikely event of an emergency, such as a WWTP shut down from physical or mechanical problems or an exceptional stormwater event, the HTDF has capacity to store up to approximately 600 days of displaced water from tailings loading and precipitation. With some grading at the north perimeter of the HTDF, a surface elevation for the cut-off wall at or above elevation 1,543 MSL will be established. By meeting that elevation, the HTDF exceeds the capacity required for a 24 hr, 100 yr storm event. A 24 hr, 100 yr storm event would require 1.2 ft of added storage capacity for the HTDF. Assuming a water elevation of 1,538.5 ft MSL, a 24 hr, 100 yr storm event would result in a peak water level of 1,539.7 ft MSL, less than the containment elevation of 1,543 ft MSL. This will provide adequate contingency to address and resolve any potential emergencies or WWTP discharge issues.*

KEMC ADDITIONAL INFORMATION

- An updated version of Page 14 of the permit application as well as the Table of Contents has been included in Attachment F. The document contains minor updates due to changes in figure numbers and addition of new figures.

ATTACHMENT A

Updated Application Section 10A and 10J

Revised

US Army Corps of Engineers (USACE) | Michigan Department of Environmental Quality (MDEQ) DEQ

10 PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND, LAKE OR STREAM OR A GREAT LAKE

- Check boxes A through M that may be applicable to your project and provide all the requested information.
- If your project may affect wetlands, also complete Section 12. If your project may impact regulated floodplains, also complete Section 13.
- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27.
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.

⇒Provide a cross section and overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides to prepare site-specific drawings.
⇒Provide tables for multiple impact areas or multiple activities and provide fill and excavation/dredge calculations.

Water Level Elevation
On a Great Lake use IGLD 85 ☐ surveyed ☐ converted from observed still water elevation. On inland waters, ☐ NGVD 29 ☑ NAVD 88 ☐ other _____
Observed water elevation (ft) 1537.88 date of observation (M/D/Y) June 5, 2007

☑ A. PROJECTS REQUIRING FILL (See All Sample Drawings)
⇒ Attach both overall site plan and cross-section views to scale showing maximum and average fill dimensions. Figs. 1-3, 2-1, 2-3, and 2-4

(Check all that apply) ☐ floodplain fill ☐ wetland fill ☐ riprap ☐ seawall, bulkhead, or revetment ☐ bridge or culvert
☐ boat launch ☐ off-shore swim area ☐ beach sanding ☐ boatwell ☐ crib dock ☑ other inland lake fill

Fill dimensions (ft)	Total fill volume (cu yd)	Maximum water depth in fill area (ft)
See Section 2.10 and Figures 2-1, 2-3 and 2-4 length 2440 ft width 501 ft ave maximum depth 75 ft max., 53 ft ave	2.4 x E06 cy	190

Type of clean fill ☐ pea stone ☐ sand ☐ gravel ☐ wood chips ☑ other tailings from ore beneficiation
Will filter fabric be used under proposed fill? ☑ No ☐ Yes (If Yes, type) _____
Source of clean fill ☐ on-site ⇒ If on-site, show location on site plan ☐ commercial ☑ other ⇒ If other, attach description of location See section 2.10 of this application
Fill will extend _____ feet into the water from the shoreline and upland 0 feet out of the water. Fill volume below OHWM (cu yd) 2.4 x E06 cy

☐ B. PROJECTS REQUIRING DREDGING OR EXCAVATION (For dredging projects see Sample Drawing 7, for excavation see other applicable Sample Drawings)
⇒ Attach both plan and cross-section views to scale showing maximum and average dredge and/or excavation dimensions, and dredge disposal location.

(Check all that apply) ☐ floodplain excavation ☐ wetland dredge, excavation or draining ☐ seawall, bulkhead, or revetment
☐ navigation ☐ boat well ☐ boat launch ☐ other _____

Total dredge/excavation volume (cu yd)	Dimensions length width depth	Dredge/excavation volume below OHWM (cu yd)	Method and equipment for dredging

Has proposed dredge material been tested for contaminants? ☐ No ☐ Yes
⇒ If Yes, provide Test Results with a map of sampling locations
Dredged or excavated spoils will be placed ☐ on-site ☐ off-site
⇒ Provide detailed disposal area site plan and location map.
⇒ Provide Letter of authorization from owner, if disposing of spoils off site.
Has this same area previously been dredged? ☐ No ☐ Yes If Yes, date and permit number: _____
If Yes, are you proposing to enlarge the previously dredged area? ☐ No ☐ Yes
Is long-term maintenance dredging planned? ☐ No ☐ Yes If Yes, when and how much? _____

☑ C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 17, 22, and 23. Others may apply)

Riprap waterward of the ☐ shoreline OR ☐ ordinary high water mark	Dimensions (ft) length width depth	Volume(cu yd)
Riprap landward of the ☑ shoreline OR ☐ ordinary high water mark	Dimensions (ft) length 10 width 25 depth 1.5	Volume(cu yd) 8.33

Type of riprap ☐ field stone ☑ angular rock ☐ other _____
Will filter fabric be used under proposed riprap? ☐ No ☑ Yes If Yes, type geotextile fabric

☐ D. SHORE PROTECTION PROJECTS (See Sample Drawings 2, 3, and 17) Complete Sections 10 A, B and/or C above, as applicable
(check all that apply) ☐ riprap/revetment – length (ft) _____ ☐ seawall/bulkhead – length (ft) _____ ☐ other – length (ft) _____
Distances of project from both property lines (ft) _____

☐ E. DOCK - PIER – MOORING PILINGS – ROOFS (See Sample Drawing 10)

Dock Type ☐ open pile ☐ filled ☐ crib Seasonal support structure? ☐ No ☐ Yes	Permanent Roof ☐ No ☐ Yes Mounted on _____ Maximum Dimensions: length width height
Proposed structure dimensions (ft) length width	Dimensions of nearest adjacent structures (ft) length width

☐ F. BOAT WELL (See EZ Guides)
Type of sidewall stabilization ☐ wood ☐ steel ☐ concrete ☐ vinyl ☐ riprap ☐ other _____

Boat well dimensions (ft) Length width depth	Number of boats
Volume of backfill behind sidewall stabilization (cu yd)	Distances of boat well from adjacent property lines (ft)

☐ G. BOAT LAUNCH (See EZ Guide) (check all that apply) ☐ new ☐ existing ☐ public ☐ private ☐ commercial ☐ replacement

Proposed overall boat launch dimensions (ft) length width depth	Type of material ☐ concrete ☐ wood ☐ stone ☐ other _____	
Existing overall boat launch dimensions (ft) Length width depth	Boat launch dimensions (ft) below ordinary high water mark Length width depth	
Distances of launch from both property lines (ft)	Number of adjacent Skid piers	Skid pier dimensions (ft) length width

☐ H. BOAT HOIST (See EZ Guide)
(Check all that apply) ☐ seasonal ☐ permanent ☐ cradle ☐ side lifter ☐ other _____ located on ☐ seawall ☐ dock ☐ bottomlands

☐ I. BOARDWALKS AND DECKS IN ☐ WETLANDS - OR - ☐ FLOODPLAINS (See Sample Drawings 5 and 6) Provide table if necessary

Boardwalk ☐ on pilings ☐ on fill	Dimensions (ft) length width	Deck ☐ on pilings ☐ on fill	Dimensions (ft) length width

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US Army Corps of Engineers (USACE) — Michigan Department of Environmental Quality (MDEQ) DEQ

10 Continued - PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

☑ **J. INTAKE PIPES** (See Sample Drawing 16) ☑ **OUTLET PIPES** (See Sample Drawing 22) See Figures 2-5 and 2-6a and 2-6b

Type ☐ headwall ☐ end section ☐ pipe ☑ other screened intake structure

If outlet pipe, discharge is to ☑ wetland ☐ inland lake ☐ stream, drain, or river ☐ Great Lake ☐ other

Dimensions of headwall NA OR end section (ft) length width depth

Number of pipes 4

Pipe diameters and invert elevation Sect 2.10, Figs 1-3, 2-1

☐ **K. MOORING AND NAVIGATION BUOYS** (See EZ Guide for Sample Drawing)

➡ Provide an overall site plan showing the distances between each buoy, distances from the shore to each buoy, and depth of water at each buoy in feet.

➡ Provide cross-section drawing(s) showing anchoring system(s) and dimensions.

Number of buoys | Boat Lengths | Type of anchor system | Purpose of buoy ☐ mooring ☐ navigation ☐ swimming

Dimensions of buoys (ft) Width height swing radius chain length

Do you own the property along the shoreline? ☐ No ☐ Yes

➡ Attach Authorization Letter from the property owner(s), if No above.

☐ **L. FENCES IN WETLANDS, STREAMS, OR FLOODPLAINS** (See EZ Guide for Drawing)

➡ Provide an overall site plan showing the proposed fencing through wetlands, streams, or floodplains.

➡ Provide drawing of fence profile showing the design, dimension, post spacing, board spacing, and distance from ground to bottom of fence.

(check all that apply) ☐ wetlands ☐ streams ☐ floodplains

Total length (ft) of fence through wetlands ____ streams ____ floodplains ____

Fence height (ft)

Fence type and material

☑ **M. OTHER** - e.g., structure removal or construction, breakwater, aerator, fish shelter, and structural foundations in wetlands or floodplains. See Section 2.10

Structure Description: Subsurface cut-off wall on north end of HTDF

Dimensions: 1800 feet long, 40-50 feet deep

11 EXPANSION OF AN EXISTING OR CONSTRUCTION OF A NEW LAKE OR POND (See Sample Drawings 4 and 15)

Which best describes your proposed waterbody use (check all that apply)

☐ wildlife ☐ stormwater basin ☐ recreation ☐ wastewater basin ☐ other

Water source for lake/pond

☐ groundwater ☐ natural springs ☐ Inland Lake or Stream ☐ stormwater runoff ☐ pump ☐ sewage ☐ other

Location of the lake/basin/pond ☐ floodplain ☐ wetland ☐ upland

Maximum dimensions (ft): length width depth

Maximum Area: ☐ acres ☐ sq ft

Spoils will be placed ☐ onsite ☐ offsite outside of wetland and floodplain ☐ other

➡ Provide a Detailed Disposal Area Site Plan with location map, address, and disposal dimensions.

➡ Provide a Letter of Authorization from off site disposal site owner.

➡ Provide elevations and cross sections for outlets and/or emergency. Complete section 10J

Will project involve construction of a dam, dike, outlet control structure or spillway? ☐ No ☐ Yes (If Yes, complete Section 17) Basin has overflow. See Section 2.11

12 ACTIVITIES THAT MAY IMPACT WETLANDS (See Sample Drawings 8 & 9, and complete sections 10 A and 10 B for dredge or excavation as applicable)

- For information on the MDEQ's Wetland Identification Program (WIP) visit www.michigan.gov/deqwetlands or call 517-373-1170.
- Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area. ➡Attach tables for multiple impact areas or activities
- Label the impacted wetland areas on a site plan, drawn to scale or with dimensions. ➡ Attach at least one cross-section for each wetland dredge and/or fill area.
- If dredge/excavation material will be disposed of on site, show the location on site plan and include soil erosion and sedimentation control measures.

(check all that apply) ☐ fill (Section 10A) ☐ dredge or excavation (Section 10B) ☐ boardwalk or deck (Section 10I) ☐ dewatering ☐ fences (Section 10L) ☐ bridges and culverts (Section 14) ☐ draining surface water ☐ stormwater discharge ☐ restoration ☐ other

Wetland dredge/excavation dimensions	maximum length (ft)	maximum width (ft)	Dredge/excavation area ☐ acres ☐ sq ft	average depth (ft)	dredge volume (cu yd)
Wetland fill dimensions	maximum length (ft)	maximum width (ft)	Fill area ☐ acres ☐ sq ft	average depth (ft)	fill volume (cu yd)
Total wetland dredge/excavation area ☐ acres ☐ sq ft	Total wetland dredge/excavation volume (cu yd)		Total wetland fill area ☐ acres ☐ sq ft	Total wetland fill volume (cu yd)	

The proposed project will be serviced by: ☐ public sewer ☐ private septic system ➡Show system on plans

If septic system, has an application for a permit been made to the County Health Department? ☐ No ☐ Yes

If Yes, has permit been issued? ☐ No ☐ Yes ➡Provide copy

Has a professional wetland delineation been conducted for this parcel? ☐ No ☑ Yes

➡Provide a copy of the delineation. App C ➡ Supply data sheets. See Section 2.12

Applicant purchased property ☐ before OR ☑ after October 1, 1980.

Is there a recorded MDEQ easement on the property? ☑ No ☐ Yes If Yes, provide the easement number

Has the MDEQ conducted a wetland assessment for this parcel? ☑ No ☐ Yes ➡ If Yes, provide a copy of assessment or WIP number:

Describe the wetland impacts, the proposed use or development, and any alternatives considered.

Water will be displaced from the HTDF due to tailings placement. The water supply to the wetland may increase. See Section 2.12 and Section 3

Does the project impact more than 1/3 acre of wetland? ☐ No ☐ Yes NA

➡ If yes, submit a Mitigation Plan that includes the type and amount of mitigation proposed. For more information on mitigation go to www.michigan.gov/deqwetlands

Describe how impacts to waters of the United States will be avoided and minimized.

A WWTP will be used so that discharged water to Wetland EE will meet Michigan Water Quality Standards. WWTP discharge is permitted under a separate NPDES permit for the project.

Describe how impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.

Proposed project does not require mitigation or compensation, since water quality in receving wetland will be protected and since there is no filling of a wetland. See Section 2.12.

Is any grading or mechanized land clearing proposed? ☐ No ☑ Yes ➡ Show locations on submitted site plan. See Section 2.12

Has any of the proposed grading or mechanized land clearing been completed? ☑ No ☐ Yes ➡ Show labeled locations on site plan

EQP 2731 Revised 6/2008

ATTACHMENT B

Updated Figures 2-3 and 2-4

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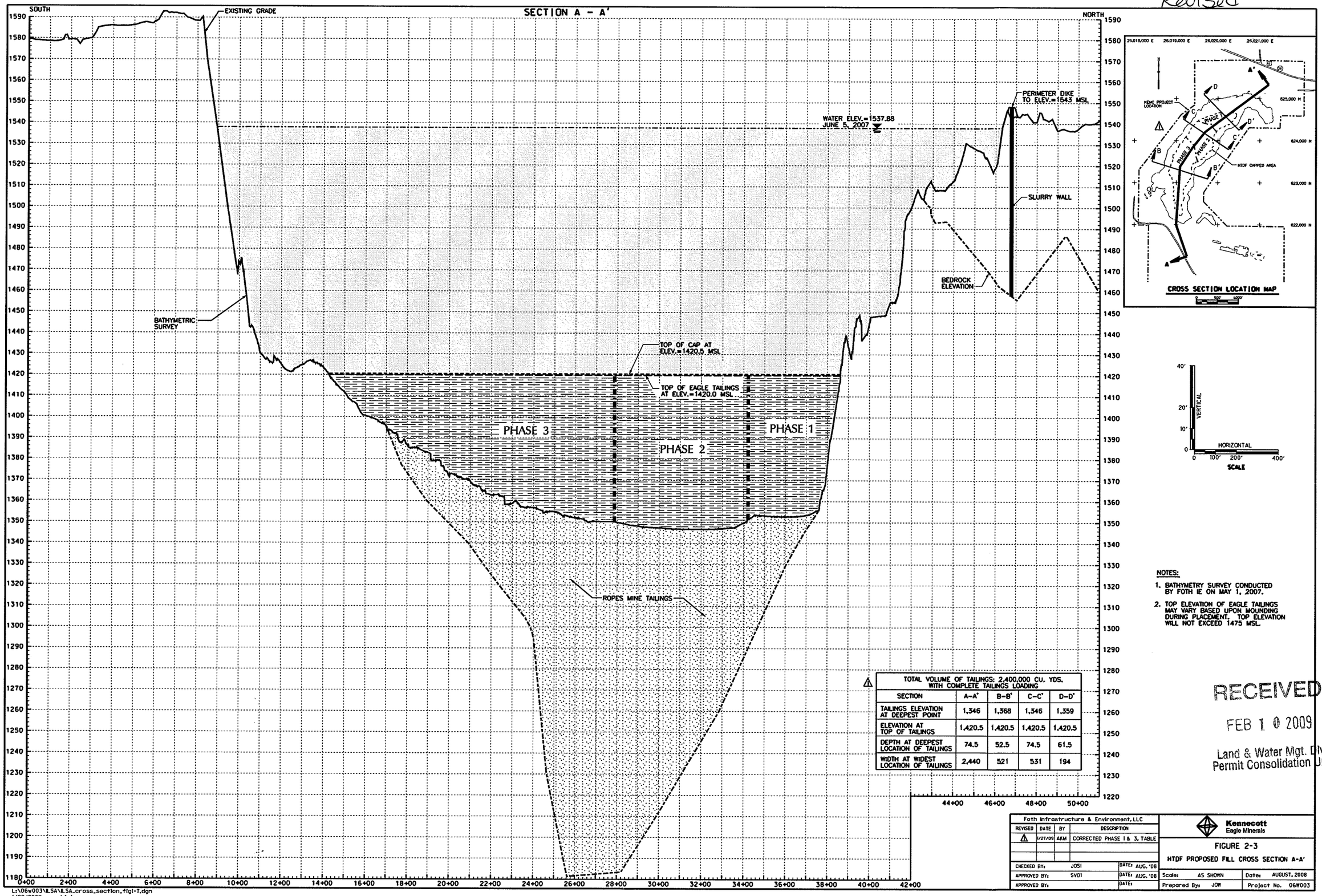
Permit Consolidation Unit

Revised

SECTION A - A'



NOTES:

1. BATHYMETRY SURVEY CONDUCTED BY FOTH IE ON MAY 1, 2007.
2. TOP ELEVATION OF EAGLE TAILINGS MAY VARY BASED UPON MOUNDING DURING PLACEMENT. TOP ELEVATION WILL NOT EXCEED 1475 MSL.

⚠ TOTAL VOLUME OF TAILINGS: 2,400,000 CU. YDS. WITH COMPLETE TAILINGS LOADING

SECTION	A-A'	B-B'	C-C'	D-D'
TAILINGS ELEVATION AT DEEPEST POINT	1,346	1,368	1,346	1,359
ELEVATION AT TOP OF TAILINGS	1,420.5	1,420.5	1,420.5	1,420.5
DEPTH AT DEEPEST LOCATION OF TAILINGS	74.5	52.5	74.5	61.5
WIDTH AT WIDEST LOCATION OF TAILINGS	2,440	521	531	194

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Permit Consolidation Unit

Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION
⚠	1/27/09	AKM	CORRECTED PHASE 1 & 3, TABLE

CHECKED BY: JOSI DATE: AUG. '08
APPROVED BY: SVDI DATE: AUG. '08
APPROVED BY: DATE:

Kennecott Eagle Minerals

FIGURE 2-3

HTDF PROPOSED FILL CROSS SECTION A-A'

Scale: AS SHOWN Date: AUGUST, 2008
Prepared By: JDW Project No. 06W003

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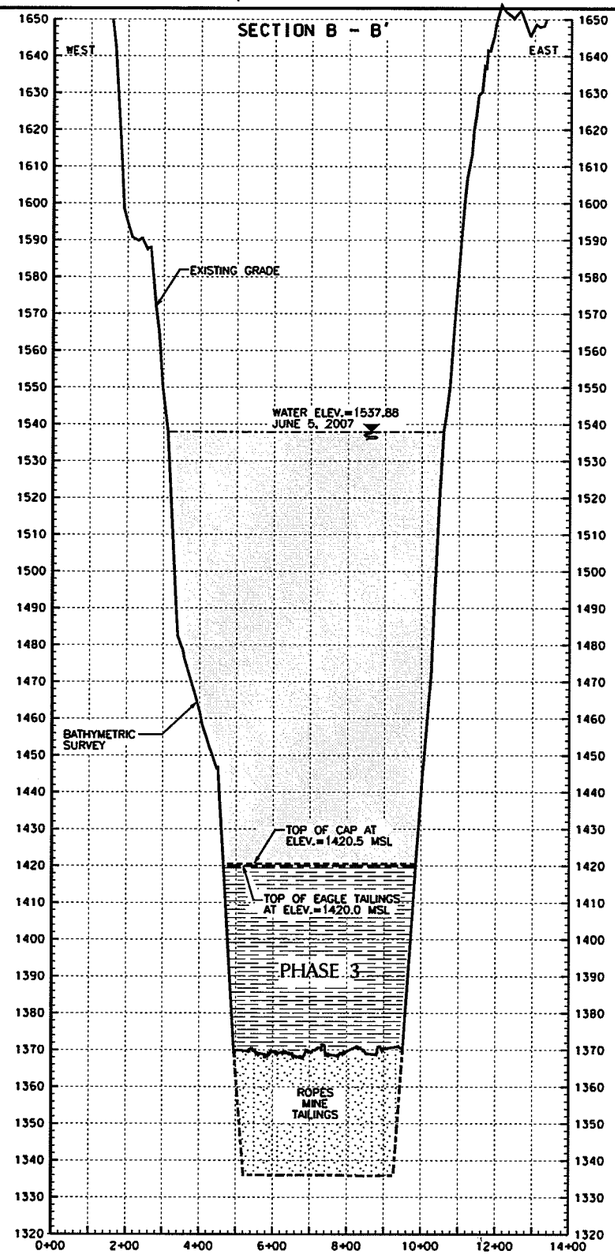
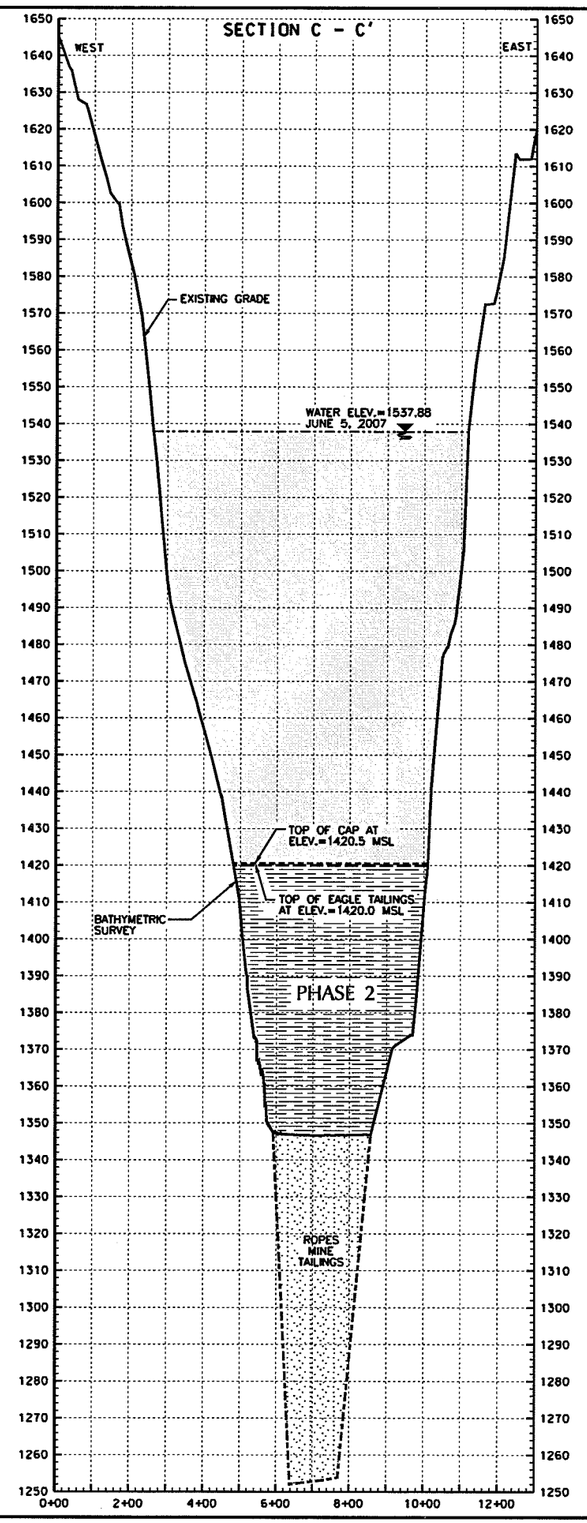
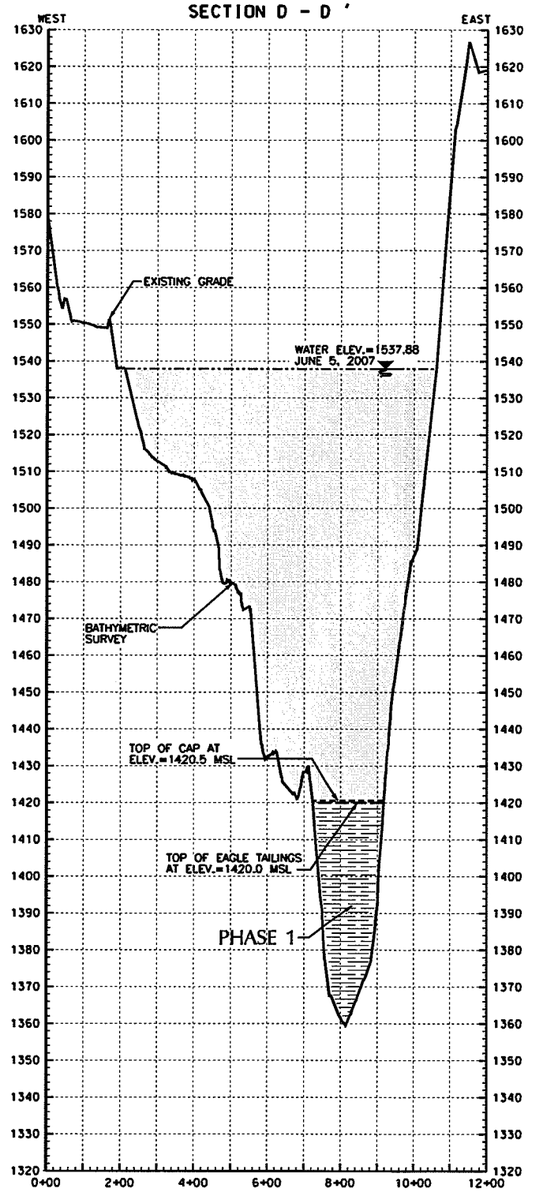
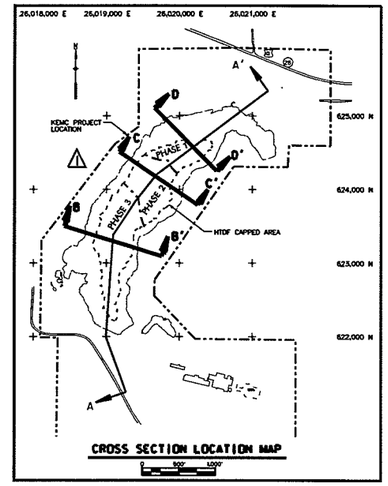
1/28/2009 bjwl

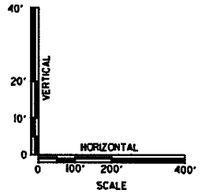
Revised











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Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION
⚠	1/27/09	AKM	CORRECTED PHASE 1 & 3, TABLE

CHECKED BY:	JOS1	DATE:	AUG. '08
APPROVED BY:	SVD1	DATE:	AUG. '08
APPROVED BY:		DATE:	

Kennecott Eagle Minerals

FIGURE 2-4

HTDF PROPOSED FILL CROSS SECTIONS B-B', C-C' AND D-D'

Scale:	AS SHOWN	Date:	AUGUST, 2008
Prepared By:	JOW	Project No.	06W003

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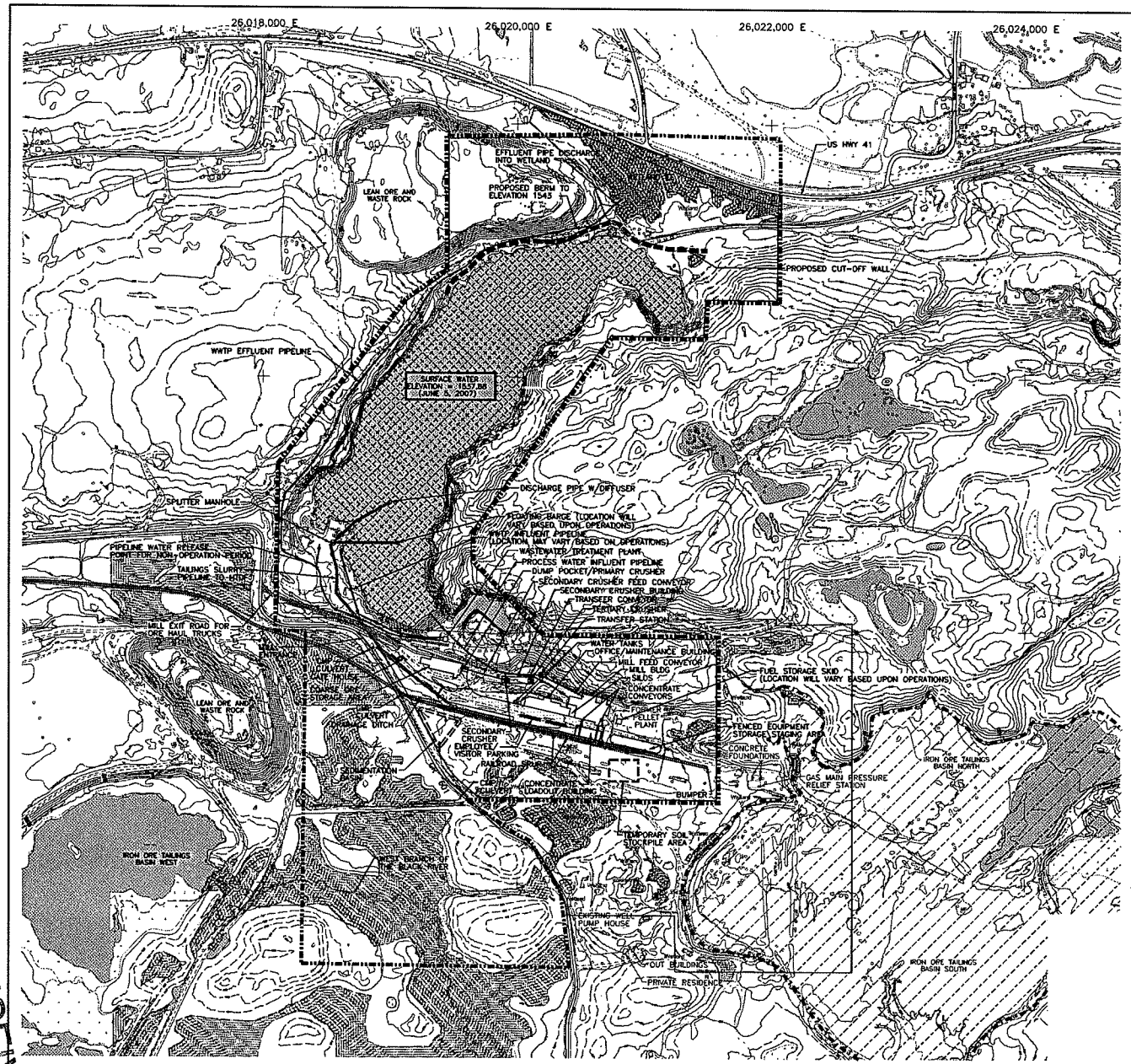
1/28/2009 bjw1

ATTACHMENT C

Updated Figures 1-3, 2-1 and 2-5

Revised



LEGEND

- EXISTING ELEV. CONTOUR IN FEET
- TREE
- TREE LINE
- BUILDING
- TRAIL
- PAVED ROAD
- UNPAVED ROAD
- STREAM/LAKE
- HUMBOLDT TAILINGS DISPOSAL FACILITY (HTDF)
- PRE-EXISTING IRON ORE TAILINGS DISPOSAL FACILITY
- KEMC PROJECT LOCATION
- GRAVEL SURFACE
- RAILROAD SPUR
- SURFACE WATER FLOW DIRECTION
- BITUMINOUS PAVED AREA
- CMP CULVERT
- FENCE
- TAILINGS SLURRY PIPELINE TO HTDF
- BERMED AREA TO ELEVATION 1543
- WWTP EFFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- WWTP INFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- PROCESS WATER INFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- WETLAND
- PROPOSED CUT-OFF WALL
- SEDIMENTATION BASIN

NOTES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2006.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/96. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. KEMC PROJECT LOCATION WITHIN SECTIONS 2 AND 11 T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. CONTOUR INTERVAL SHOWN IS 10 FOOT.
5. DOUBLE-WALL INNER AND OUTER PIPE DIAMETERS.
6. VALUES PROVIDED BY M3 ENGINEERING.

LOCATION	PIPE SIZE (INCHES)	ELEVATION (FT MSL) AT INTAKE/OUTLET
WWTP INFLUENT	8	1530
WWTP EFFLUENT	8	1535.33
MILL PROCESS WATER INFLUENT	4	~1488
TAILINGS DISCHARGE	4/8 (SEE NOTE 5)	VARIES AT DEPTH SEE NOTE 6

0 400' 800'

Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION
1	1/30/09	AEM	ADDED TABLE, REVISED BALL

CHECKED BY: AEM DATE: SEPT. '08
APPROVED BY: JOS DATE: SEPT. '08
APPROVED BY: DATE:

Kennecott Eagle Minerals

FIGURE 1-3

SITE DEVELOPMENT PLAN

Scale: AS SHOWN Date: SEPTEMBER, 2008
Prepared By: JOH Project No. 05W003

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2/6/2009 bjw

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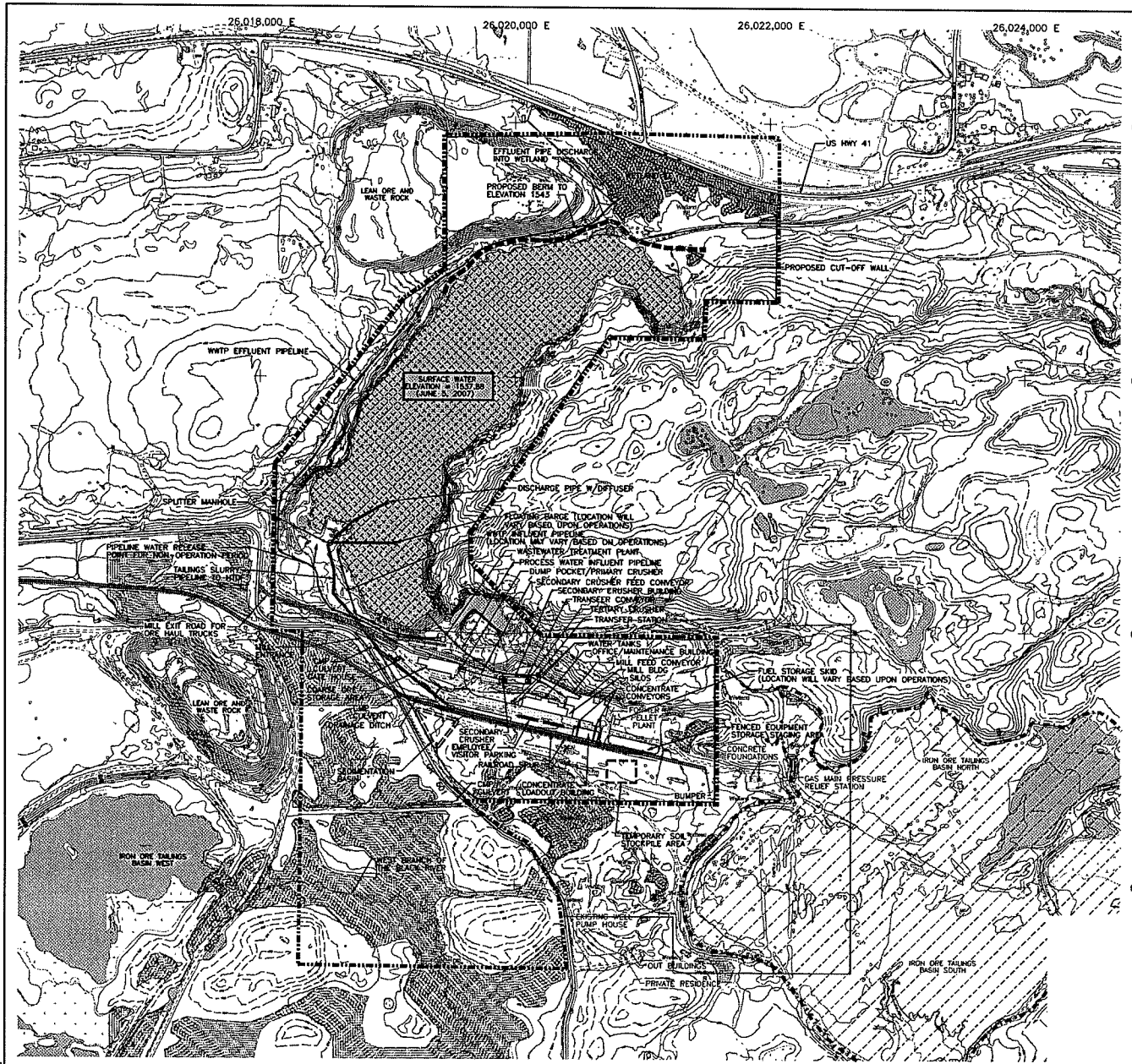

N

LEGEND

- EXISTING ELEV. CONTOUR IN FEET
- TREE
- TREE LINE
- BUILDING
- TRAIL
- PAVED ROAD
- UNPAVED ROAD
- STREAM/LAKE
- HUMBOLDT TAILINGS DISPOSAL FACILITY (HTDF)
- PRE-EXISTING IRON ORE TAILINGS DISPOSAL FACILITY
- KEMC PROJECT LOCATION
- GRAVEL SURFACE
- RAILROAD SPUR
- SURFACE WATER FLOW DIRECTION
- BITUMINOUS PAVED AREA
- CMP CULVERT
- FENCE
- TAILINGS SLURRY PIPELINE TO HTDF
- BERMED AREA TO ELEVATION 1543
- WWTP EFFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- WWTP INFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- PROCESS WATER INFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- WETLAND
- PROPOSED CUT-OFF WALL
- SEDIMENTATION BASIN

NOTES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2006.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/96. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. KEMC PROJECT LOCATION WITHIN SECTIONS 2 AND 11 T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. CONTOUR INTERVAL SHOWN IS 10 FOOT.
5. DOUBLE-WALL INNER AND OUTER PIPE DIAMETERS.
6. VALUES PROVIDED BY M3 ENGINEERING.

LOCATION	PIPE SIZE (INCHES)	ELEVATION (FT MSL) AT INTAKE/OUTLET
WWTP INFLUENT	8	1530
WWTP EFFLUENT	8	1535.33
MILL PROCESS WATER INFLUENT	4	~1488
TAILINGS DISCHARGE	4/8 (SEE NOTE 5)	VARIES AT DEPTH

SEE NOTE 6

0 400' 800'

Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION
1	1/29/09	AEM	ADDED TABLE, REVISED WALL

CHECKED BY: AEM DATE: SEPT., '08
APPROVED BY: JDS1 DATE: SEPT., '08
APPROVED BY: DATE:

Kennecott Eagle Minerals

FIGURE 1-3

SITE DEVELOPMENT PLAN

Scale: AS SHOWN Date: SEPTEMBER, 2008
Prepared By: JDK Project No. 05W003

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2/6/2009 bjwl

26,018,000 E
26,020,000 E
26,022,000 E
26,024,000 E
626,000 N
624,000 N
622,000 N
620,000 N

EFFLUENT PIPE DISCHARGE INTO WETLAND
PROPOSED BERM TO ELEVATION 1543
WETLAND EE
US HWY 41
LEAN ORE AND WASTE ROCK
PROPOSED CUT-OFF WALL
WWTP EFFLUENT PIPELINE
SURFACE WATER ELEVATION = 1537.88 (JUNE 5, 2007)
DISCHARGE PIPE W/DIFFUSER
FLOATING BARGE (LOCATION WILL VARY BASED UPON OPERATIONS)
WWTP INFLUENT PIPELINE (LOCATION MAY VARY BASED ON OPERATIONS)
WASTEWATER TREATMENT PLANT
PROCESS WATER INFLUENT PIPELINE
DUMP POCKET/PRIMARY CRUSHER
SECONDARY CRUSHER FEED CONVEYOR
SECONDARY CRUSHER BUILDING
TRANSFER CONVEYOR
TERTIARY CRUSHER
TRANSFER STATION
SPLITTER MANHOLE
PIPELINE WATER RELEASE POINT FOR NON-OPERATION PERIOD
TAILINGS SLURRY PIPELINE TO HTDF
MILL EXIT ROAD FOR ORE HAUL TRUCKS
MILL ENTRANCE
CMP CULVERT
GATE HOUSE
WATER TANKS
OFFICE/MAINTENANCE BUILDING
MILL FEED CONVEYOR
MILL BLDG
SILOS
CONCENTRATE CONVEYORS
FUEL STORAGE SKID (LOCATION WILL VARY BASED UPON OPERATIONS)
LEAN ORE STORAGE AREA
LEAN ORE AND WASTE ROCK
CMP CULVERT
DRAINAGE DITCH
FORMER PELLET PLANT
FENCED EQUIPMENT STORAGE/STAGING AREA
CONCRETE FOUNDATIONS
SECONDARY CRUSHER / EMPLOYEE / VISITOR PARKING
RAILROAD SPUR
SEDIMENTATION BASIN
CMP CULVERTS
CONCENTRATE LOADOUT BUILDING
BUMPER
GAS MAIN PRESSURE RELIEF STATION
IRON ORE TAILINGS BASIN NORTH
TEMPORARY SOIL STOCKPILE AREA
IRON ORE TAILINGS BASIN WEST
WEST BRANCH OF THE BLACK RIVER
EXISTING WELL PUMP HOUSE
OUT BUILDINGS
PRIVATE RESIDENCE
IRON ORE TAILINGS BASIN SOUTH

LEGEND

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- EXISTING ELEV. CONTOUR IN FEET
- TREE
- TREE LINE
- BUILDING
- TRAIL
- PAVED ROAD
- UNPAVED ROAD
- STREAM/LAKE
- HUMBOLDT TAILINGS DISPOSAL FACILITY (HTDF)
- PRE-EXISTING IRON ORE TAILINGS DISPOSAL FACILITY
- KEMC PROJECT LOCATION
- GRAVEL SURFACE
- RAILROAD SPUR
- SURFACE WATER FLOW DIRECTION
- BITUMINOUS PAVED AREA
- CMP CULVERT
- FENCE
- TAILINGS SLURRY PIPELINE TO HTDF
- BERMED AREA TO ELEVATION 1543
- WWTP EFFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- WWTP INFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- PROCESS WATER INFLUENT PIPELINE (LOCATION WILL VARY BASED UPON OPERATIONS)
- WETLAND
- PROPOSED CUT-OFF WALL
- SEDIMENTATION BASIN

NOTES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2006.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/96. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. KEMC PROJECT LOCATION WITHIN SECTIONS 2 AND 11 T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. CONTOUR INTERVAL SHOWN IS 10 FOOT.
5. DOUBLE-WALL INNER AND OUTER PIPE DIAMETERS.
6. VALUES PROVIDED BY M3 ENGINEERING.

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LOCATION	PIPE SIZE (INCHES)	ELEVATION (FT MSL) AT INTAKE/OUTLET
WWTP INFLUENT	8	1530
WWTP EFFLUENT	8	1535.33
MILL PROCESS WATER INFLUENT	4	~1488
TAILINGS DISCHARGE	4/8 (SEE NOTE 5)	VARIES AT DEPTH

SEE NOTE 6

0 400' 800'

Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION
⚠	1/28/09	AKM	ADDED TABLE, REVISED WALL
CHECKED BY:	AKM	DATE:	SEPT. '08
APPROVED BY:	JOSI	DATE:	SEPT. '08
APPROVED BY:		DATE:	

Kennecott Eagle Minerals

FIGURE 1-3

SITE DEVELOPMENT PLAN

Scale:	AS SHOWN	Date:	SEPTEMBER, 2008
Prepared By:	JOW	Project No.	06W003

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2/6/2009 bjwl

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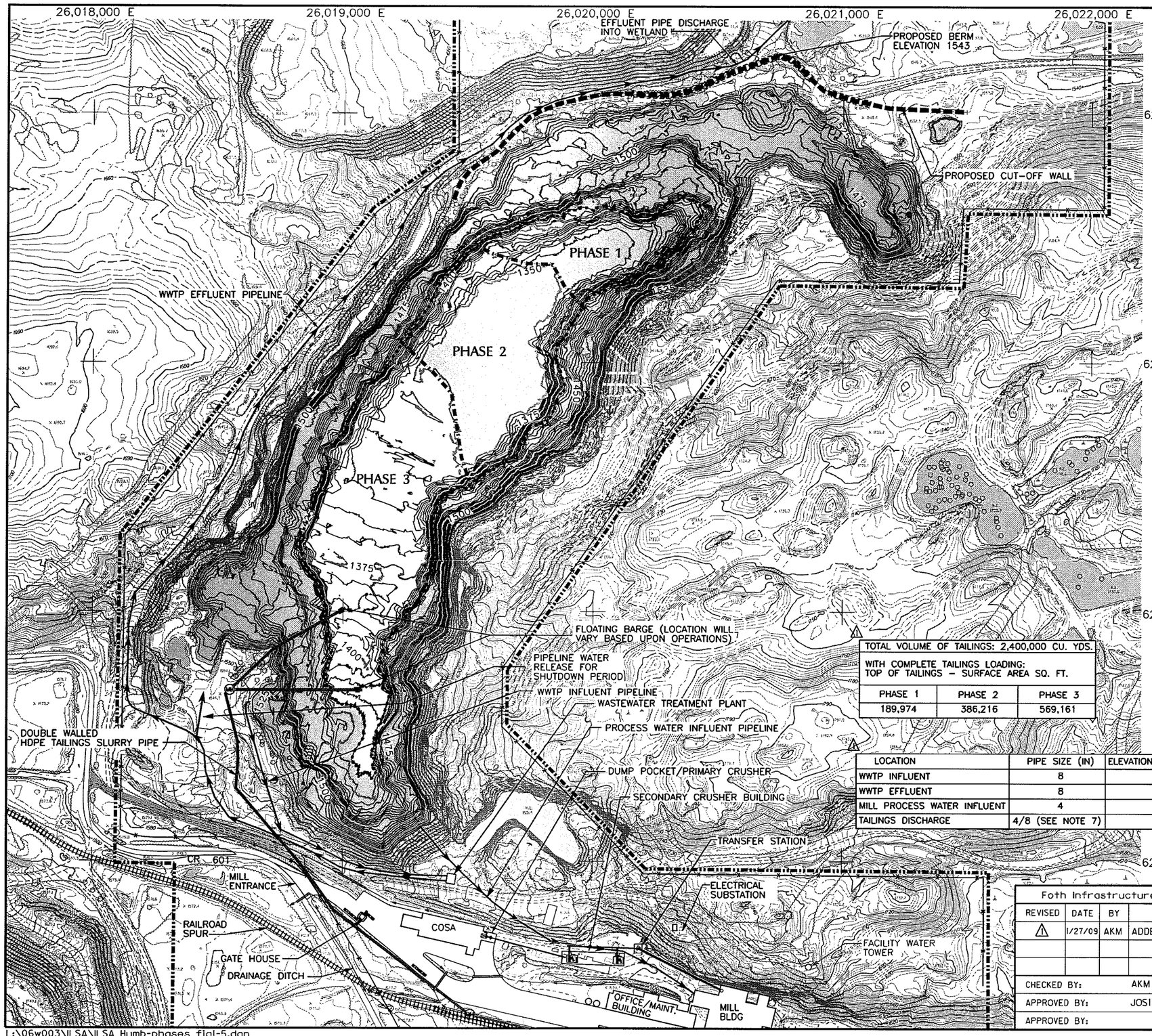

LEGEND

- EXISTING ELEV. CONTOUR IN FEET
- SPOT ELEVATION
- TREE
- TREE LINE
- BUILDING
- TRAIL
- PAVED ROAD
- UNPAVED ROAD
- STREAM/LAKE
- SURFACE WATER
- KEMC PROJECT LOCATION
- HTDF BATHYMETRIC CONTOUR
- APPROXIMATE AREA FOR HTDF PHASE 1 FILLING SEQUENCE TO ELEVATION 1420
- APPROXIMATE AREA FOR HTDF PHASE 2 FILLING SEQUENCE TO ELEVATION 1420
- APPROXIMATE AREA FOR HTDF PHASE 3 FILLING SEQUENCE TO ELEVATION 1420
- MANHOLE LOCATION
- DOUBLE ENCASED TAILINGS SLURRY PIPE
- FENCE
- BITUMINOUS PAVED AREA
- BERMED AREA TO ELEVATION 1543
- PROPOSED CUT-OFF WALL

TOTAL VOLUME OF TAILINGS: 2,400,000 CU. YDS.		
WITH COMPLETE TAILINGS LOADING: TOP OF TAILINGS – SURFACE AREA SQ. FT.		
PHASE 1	PHASE 2	PHASE 3
189,974	386,216	569,161

LOCATION	PIPE SIZE (IN)	ELEVATION (FT MSL) AT INTAKE/OUTLET
WWTP INFLUENT	8	1530
WWTP EFFLUENT	8	1535.33
MILL PROCESS WATER INFLUENT	4	~1488
TAILINGS DISCHARGE	4/8 (SEE NOTE 7)	VARIES AT DEPTH SEE NOTE 8

NOTES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2006.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/96. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. KEMC PROJECT LOCATION WITHIN SECTIONS 2 AND 11 T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. TOPOGRAPHIC CONTOUR INTERVAL SHOWN IS 2 FOOT.
5. BATHYMETRIC CONTOURS ARE FROM FOTH SURVEY DATED MAY 3 & 4, 2007. CONTOURS SHOWN ARE 5 FOOT INTERVAL.
6. ALIGNMENT OF SLURRY PIPELINE MAY CHANGE BASED UPON OPERATIONAL REQUIREMENTS.
7. DOUBLE-WALL INNER AND OUTER PIPE DIAMETERS.
8. VALUES PROVIDED BY M3 ENGINEERING.

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REVISED	DATE	BY	DESCRIPTION
1	1/27/09	AKM	ADDED TABLES, REVISED WALL

CHECKED BY:	AKM	DATE: AUG. '08
APPROVED BY:	JOSI	DATE: AUG. '08
APPROVED BY:		DATE:

Kennecott Eagle Minerals

FIGURE 2-1

HTDF OPERATING PLAN

Scale: 0 200' 400' | Date: AUGUST, 2008

Prepared By: JOW | Project No. 06W003

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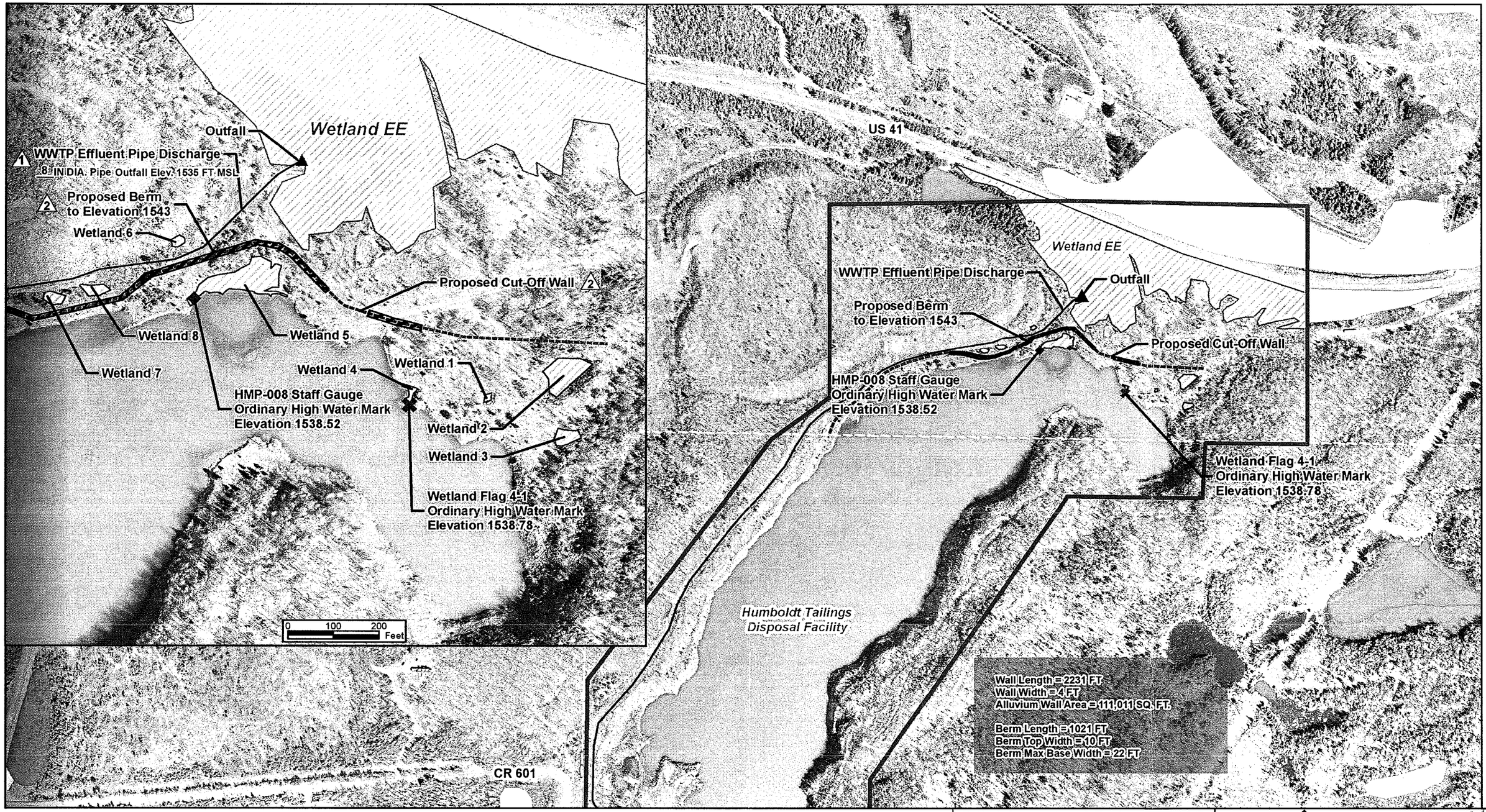
2/6/2009 bjw1

Revised



NOTES

1. **Orthophotography** supplied by Aero-Metric Engineering, **Sheboygan**, Wisconsin. Date of photography: April 27, 2006.
2. **Horizontal** datum based on NAD 83/94. **Horizontal** coordinates based on UTM Zone 16.
3. **Site Location** - Project Site within Sections 2 and 11, T47N, R29W, **Humboldt** Township, Marquette County, Michigan.

LEGEND

- Proposed Cut-Off Wall
- WWTP Effluent Pipeline
- Proposed Berm
- KEMC Project Location
- Wetland Flag 1-4
- Staff Gauge
- Flagged Wetland Boundary (Area approximately 12.25 acres)
- PLSS Sections

Marquette County NWI Outside Project Boundary

- Emergent
- Scrub-Shrub
- Forested

Modified by M3 Engineering and Technology Corp.

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Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION
1	1/28/09	AKM	Acded pipe infomation
2	2/04/09	ARG	Moved Cut-off wall and berm by M3

CHECKED BY:	KKB	DATE:OCT. '08
APPROVED BY:	SVD1	DATE:OCT. '08
APPROVED BY:		DATE:

Kennecott Eagle Minerals

FIGURE 2-5

WWTP DISCHARGE LOCATION AND CUT-OFF WALL

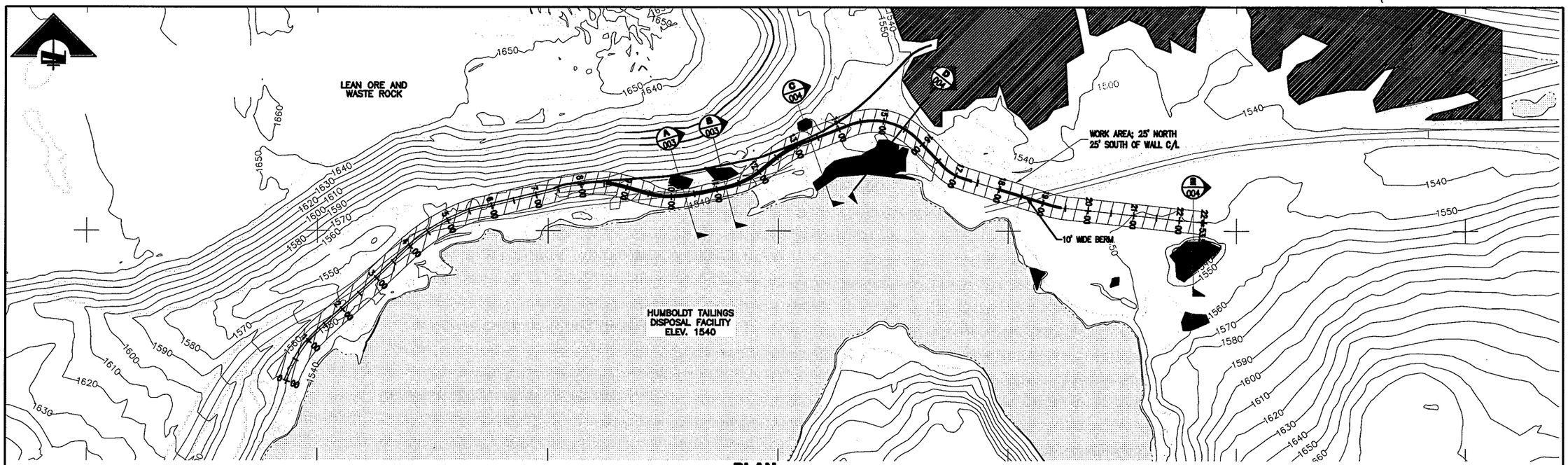
Scale: 0 250 500 Feet | Date: February 2009

Prepared by: BJW1 | Project No: 06W003

ATTACHMENT D

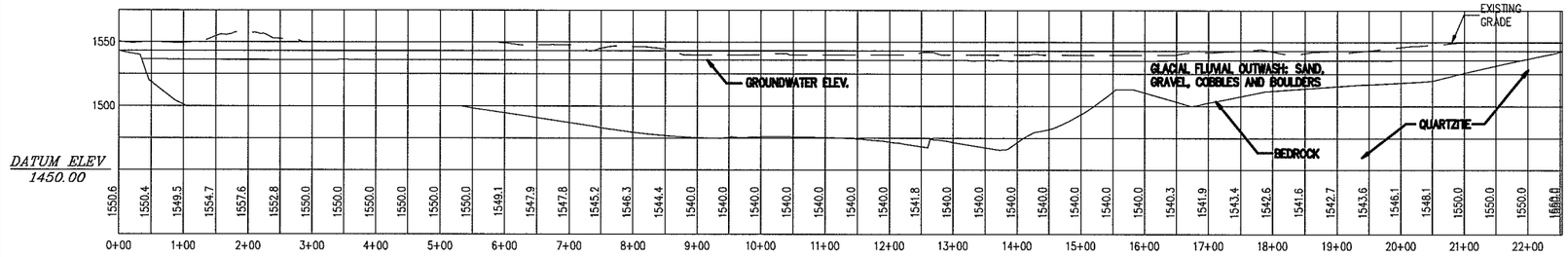
New Cut Off Wall Figures 2-5a, 2-5b and 2-5c

Revised



PLAN

100 50 0 100 200 300
SCALE IN FEET



PROFILE
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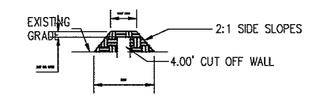

NOTE: BERM IS REQUIRED FROM STATION 12+45 – 17+17.02; 17+73.69 – 19+19.10

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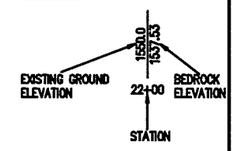
LEGEND
WETLANDS
BERM



INFORMATION RESOURCES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2006.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/96. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. KEMC PROJECT LOCATION WITHIN SECTIONS 2 & 11 T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. WETLAND DELINEATION BY KING & MCGREGOR ENVIRONMENTAL INC., 2007; BIOLOGICAL SURVEY: PLANT COMMUNITIES, WILDLIFE AND WETLAND EVALUATION; APRIL 5, 2007.
5. GROUND WATER CONTOURS BY FOTH INFRASTRUCTURE AND ENVIRONMENT; JUNE 2007.
6. BEDROCK CONTOURS MODIFIED AFTER SUPINA (1984)

NOTES:

ALLUVIUM WALL AREA = 111,011 SQ. FT.
ALLUVIUM WALL WIDTH = 4 FT.
WALL LENGTH = 2231.45 FT.
BERM LENGTH = 1020.77 FT.

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CHECKED BY	
PROJECT MGR	
CLIENT APPR.	

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Chandler, Arizona
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Hermosillo, Sonora Mexico
Tel. 011-52-662-109-1500 Email:KEmailcontact@m3eng.com.mx

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FIGURE 2-5a HUMBOLDT TAILINGS DISPOSAL FACILITY CIVIL CUT OFF WALL

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DWG NO. 000-EN-001
REV NO. P1
06 FEB 09

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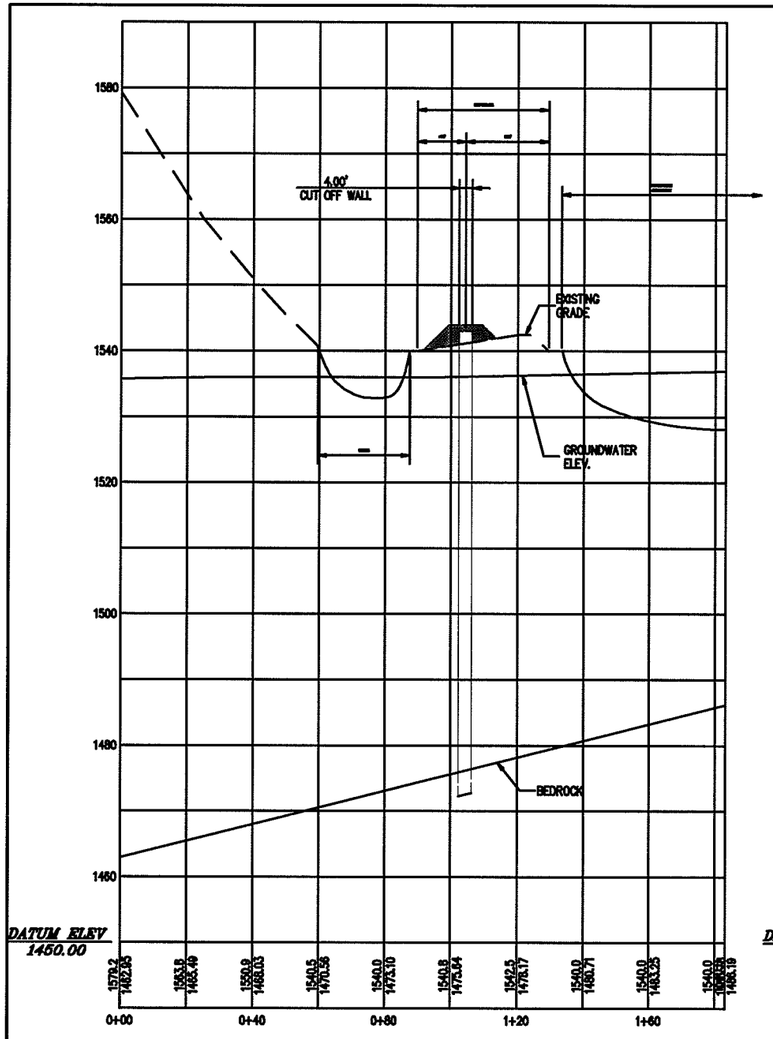

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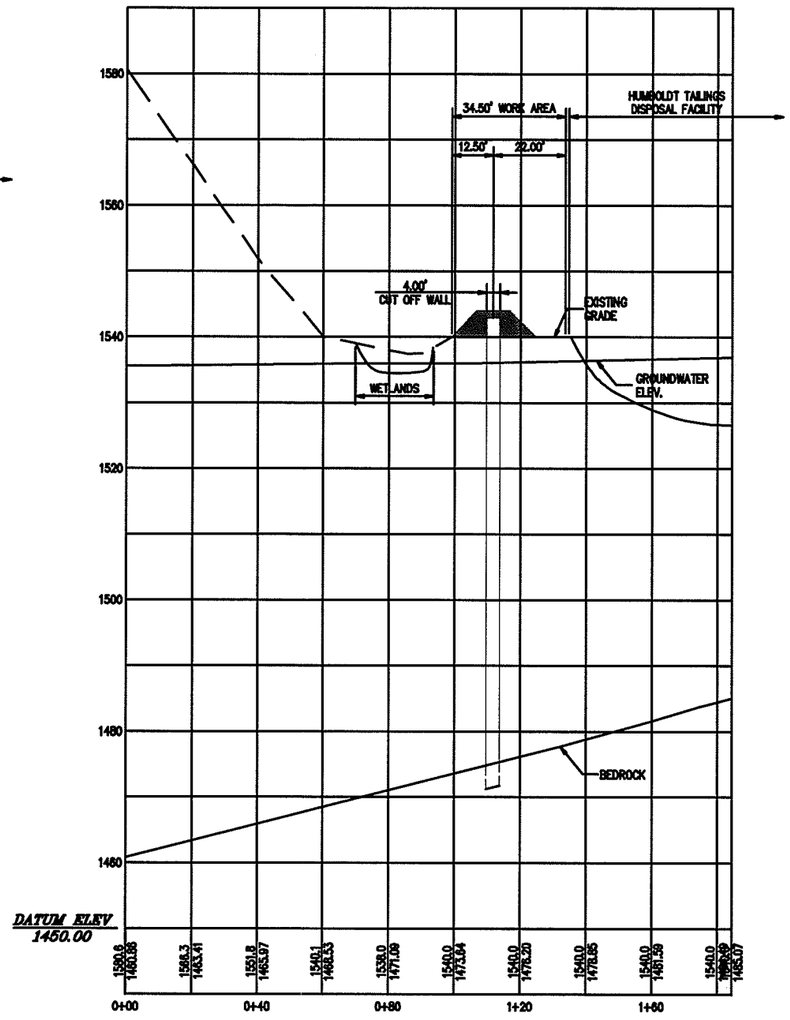

SECTION B 001
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NOTE: 50' WORK WIDTH LESS IN CROSS SECTION A & B

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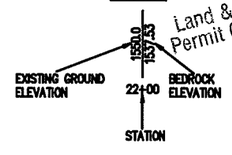

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Tel.(520)293-1488 Email: m3@m3eng.com
Chandler, Arizona
Tel. (480)753-3807 Email: m3@m3phx.com
Hermosillo, Sonora Mexico
Tel. 011-52-662-168-1506

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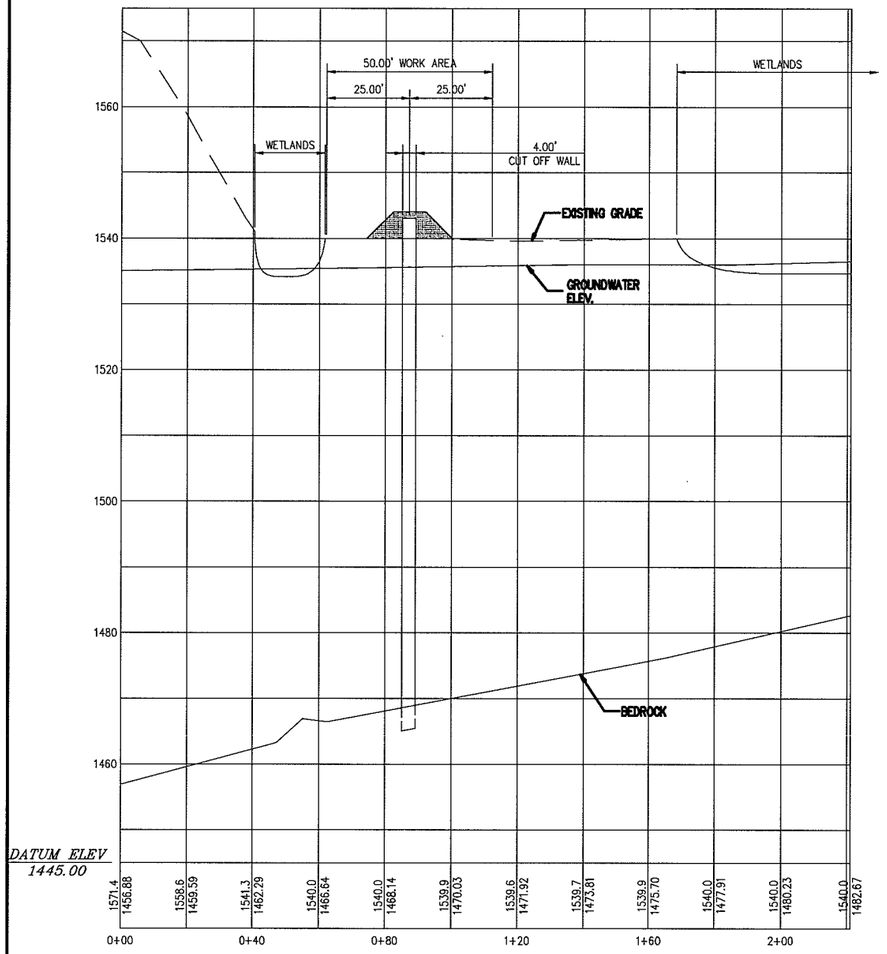
FIGURE 2-5b HUMBOLDT TAILINGS DISPOSAL FACILITY
CIVIL
CIVIL SECTIONS 1

JOB NO. M3-PN09005
DWG NO. 000-EN-003
REV NO. P1
06 FEB 09

Revised



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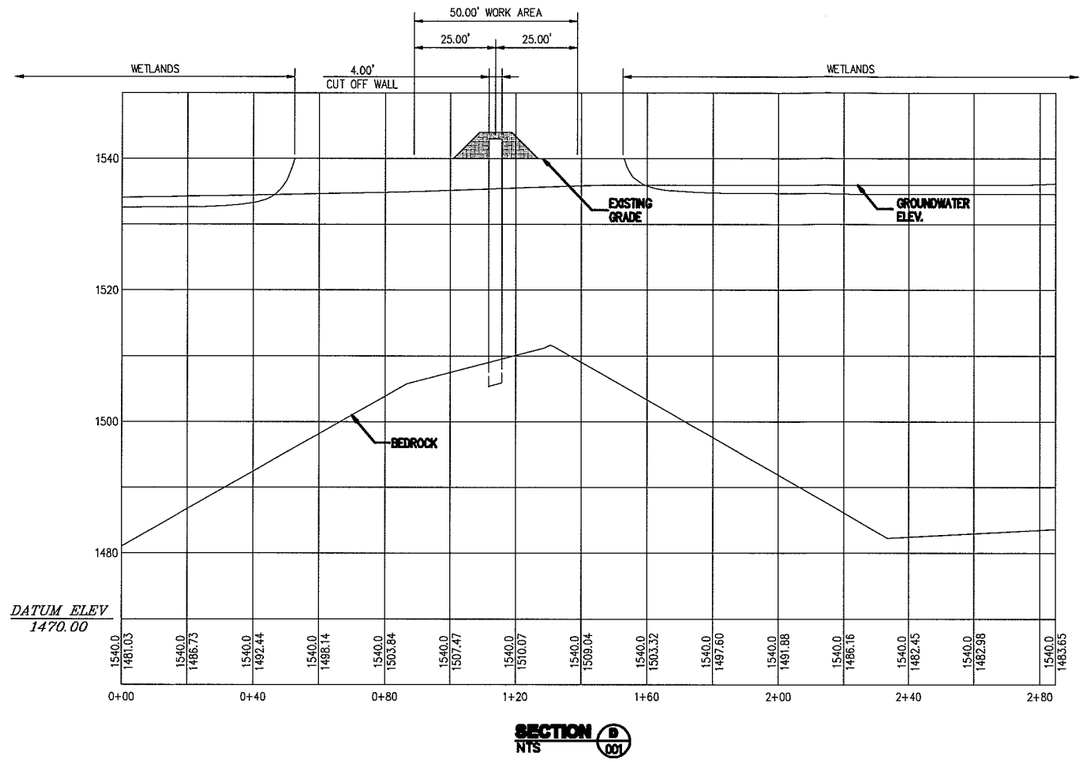

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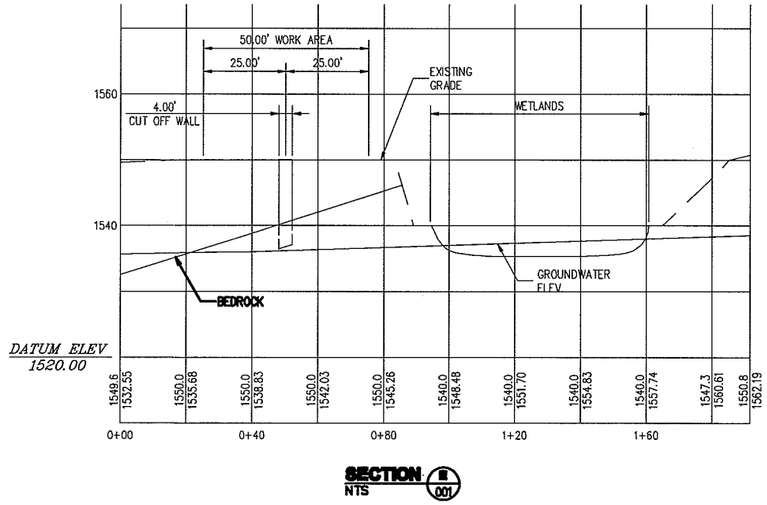

SECTION B NTS 001

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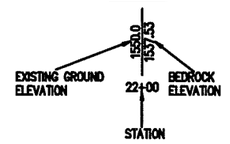

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																DESIGNED BY: FEB 09
																DRAWN BY: FEB 09
																CHECKED BY
																PROJECT MGR
																CLIENT APPR.

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Hermosillo, Sonora Mexico
Tel. 011-52-662-109-1305 Email:[illegible]

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FIGURE 2-5c HUMBOLDT TAILINGS DISPOSAL FACILITY CIVIL
CIVIL SECTIONS 2

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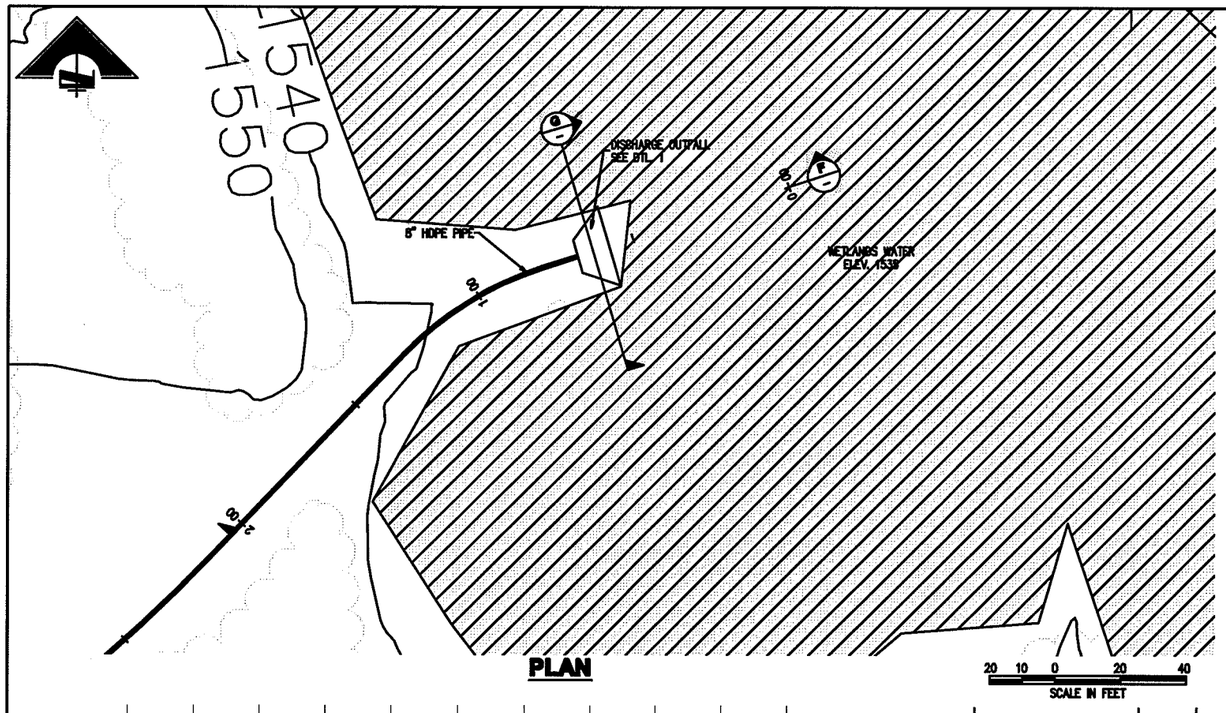
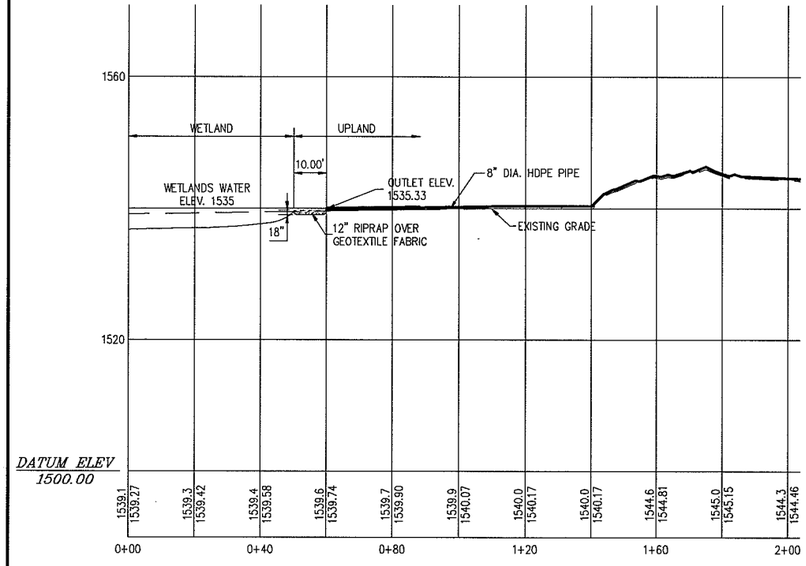
DWG NO. 000-EN-004
REV NO. P1
06 FEB 09

ATTACHMENT E

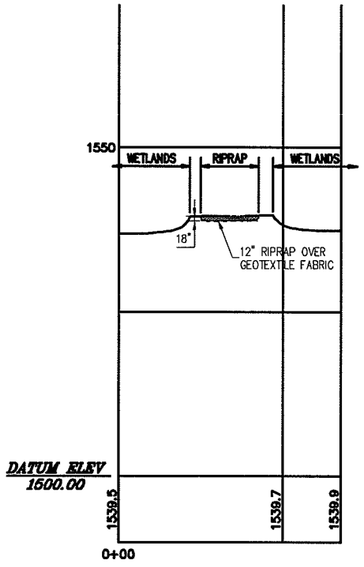
Updated/New Figure 2-6a and Figure 2-6b

Revised





PROFILE F
NTS



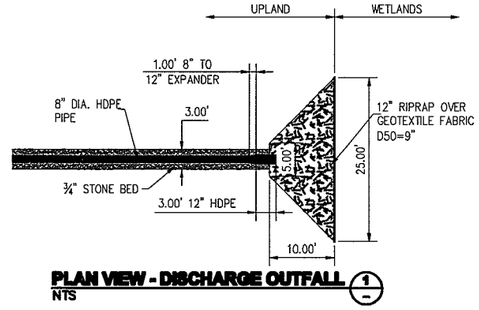
PROFILE E
NTS

INFORMATION RESOURCES:

1. TOPOGRAPHIC AND PLANIMETRIC DATA SUPPLIED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: APRIL 27, 2006.
2. CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. HORIZONTAL DATUM BASED ON NAD 83/98. HORIZONTAL COORDINATES BASED ON MICHIGAN STATE PLANE.
3. KEMC PROJECT LOCATION WITHIN SECTIONS 2 & 11 T47N, R29W, HUMBOLDT TOWNSHIP, MARQUETTE COUNTY, MICHIGAN.
4. WETLAND DELINEATION BY KING & MCGREGOR ENVIRONMENTAL INC., 2007; BIOLOGICAL SURVEY: PLANT COMMUNITIES, WILDLIFE AND WETLAND EVALUATION; APRIL 5, 2007.
5. GROUND WATER CONTOURS BY FOTH INFRASTRUCTURE AND ENVIRONMENT; JUNE 2007.
6. BEDROCK CONTOURS MODIFIED AFTER SUPINA (1984)

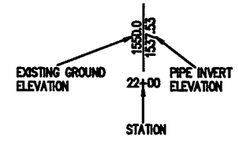
NOTES:

1. EXCAVATION VOLUME FOR RIPRAP = 286 CUBIC FEET



PLAN VIEW - DISCHARGE OUTFALL 1
NTS

LEGEND



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REFERENCES		REFERENCES	
DWG. NO.	TITLE	DWG. NO.	TITLE

REVISIONS						REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE: NONE	
DESIGNED BY:	FEB 09
DRAWN BY:	FEB 09
CHECKED BY	
PROJECT MGR	
CLIENT APPR.	

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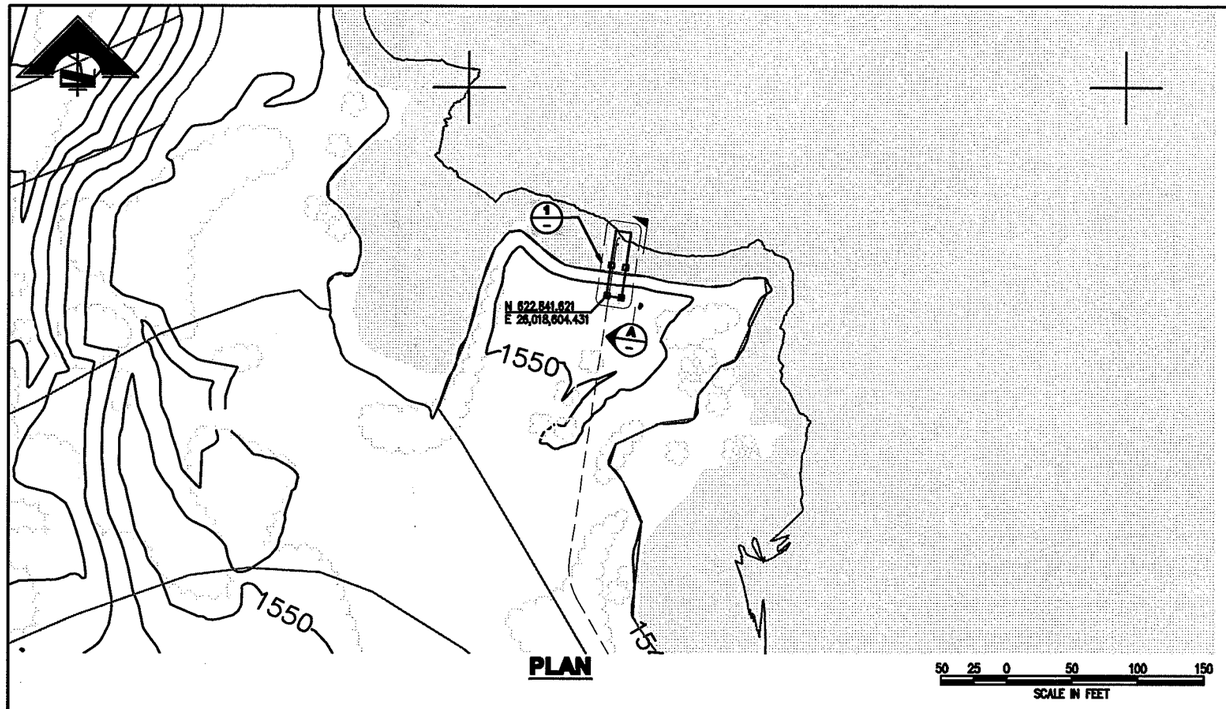
KENNECOTT EAGLE MINERALS

FIGURE 2-6a HUMBOLDT TAILINGS DISPOSAL FACILITY CIVIL WWTP OUTLET

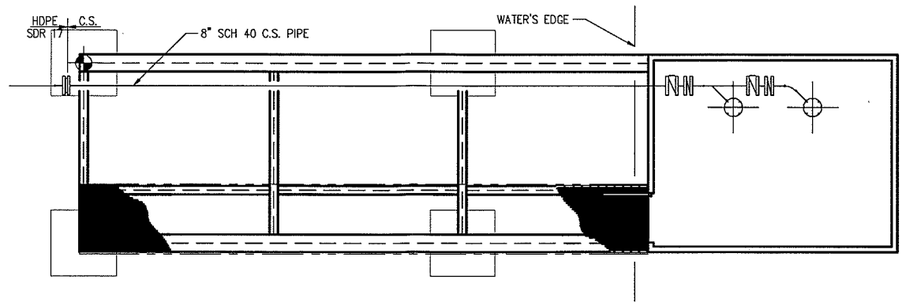
JOB NO. M3-PN09005
DWG NO. 090-EN-002
REV NO. P1
06 FEB 09

Revised

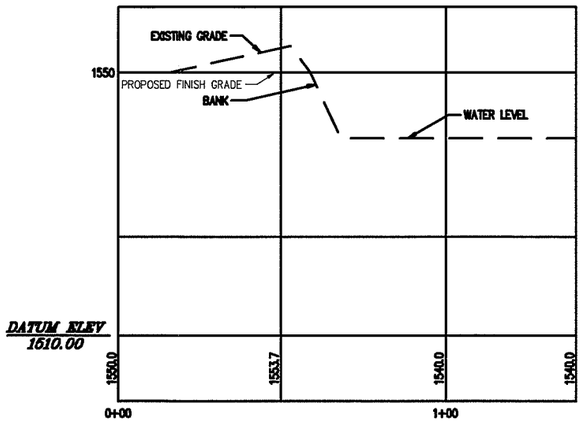


PLAN

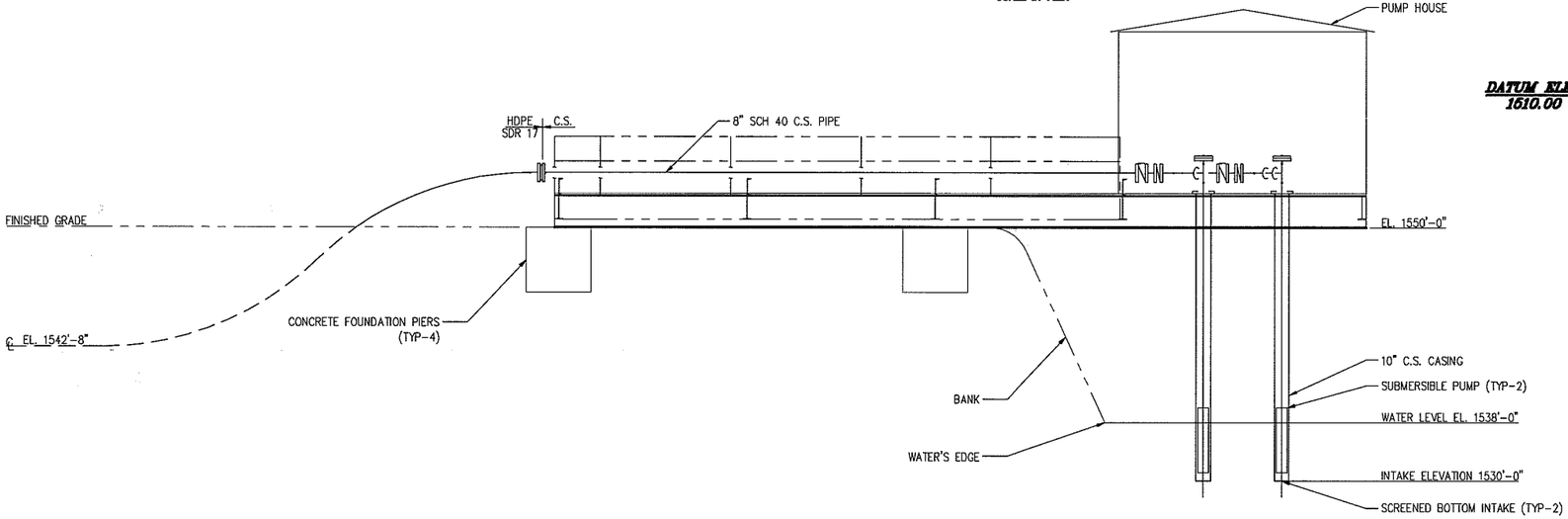
50 25 0 50 100 150
SCALE IN FEET



PATIAL PLAN (1)
SCALE: 1/4"=1'-0"



EXISTING GRADE PROFILE
NTS



SECTION (A)
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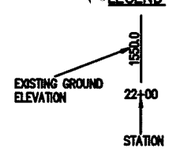
Permit Consolidation Unit

LEGEND



NOTES:
1. NO EXCAVATION OR DREDGING WILL BE PERFORMED IN THE POND. THE EXISTING GRADE LEVEL WILL BE GRADED TO PROVIDE A LEVEL SURFACE FOR THE INSTALLATION OF THE PUMP STATION.

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NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE: NONE	
DESIGNED BY:	FEB 09
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PROJECT MGR	
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FIGURE 2-6b HUMBOLDT TAILINGS DISPOSAL FACILITY PIPING
WTP INTAKE PUMP HOUSE

JOB NO. M3-PN09005
DWG NO. 000-EN-005
REV NO. P1 | 06 FEB 09

File: I:\Projects_Active\PN09-005.dwg LAST UPDATE: FEB 05, 2009 @ 4:51 PM BY: mk73 LAST SAVE: PLOT SCALE: 1:1.00

ATTACHMENT F

Update of Page 14 of the Joint Permit Application for Inland Lakes and Streams

Revised

C. Riprap
As a result of the tailings loading, approximately 13,500 ft^3 of water per day will be displaced from the HTDF during operations. Displaced water and water run-off from the HTDF will be treated at the WWTP if necessary, before discharging to a wetland north of the HTDF. The discharge area into the wetland will be lined with 12-in riprap (Figure 2-6). The riprap area will be approximately 10 ft wide by 25 ft long by 18-in deep, and will be underlain with geotextile fabric.

J. Intake / Outlet Pipes
A screened intake structure will be installed in the HTDF for providing mill process water. The intake structure will be installed at the location shown in Figure 2-1.

Tailings will be placed at the bottom of the HTDF via a pipeline connected to a diffuser at the discharge outlet (Figure 2-2). The tailings slurry will be subaqueously placed at the HTDF bottom with the use of a floating barge having a discharge boom that can be positioned vertically across the floor. The barge will move in such a manner that the tailings will be uniformly distributed on the HTDF bottom.

A screened intake pipe for the WWTP will be installed in the HTDF at the location shown in Figure 2-1. A discharge pipe from the WWTP will be located in the wetland area as shown in Figure 2-5. Details for the WWTP intake and discharge pipes are shown in Figures 2-6a and 2-6b.

M. Other
A low permeability cut-off wall will be constructed at the north end of the HTDF to prevent HTDF water from mixing with groundwater present in the alluvial soil at the location shown on Figure 1-3. The cut-off wall may extend up to 2,231 linear feet and will be keyed to the bedrock outcrop near elevation 1,543 ft. KEMC is considering different cut-off wall construction techniques, including cut/fill methods and vibratory beam injection methods. Both of these methods have been successfully used in similar type conditions. As shown in Figures 2-1 and 2-5, some grading will be needed at the north perimeter of the HTDF to establish a surface elevation at or above elevation 1,543 ft. By meeting that elevation, the HTDF exceeds the capacity required for a 24 hr, 100-yr storm event. Details appear in Figures 2-5a, 2-5b, and 2-5c.

2.11 Expansion of an Existing or Construction of a New Lake or Pond

This section does not apply to the HTDF.

2.12 Activities That May Impact Wetlands

Water displaced from tailings placement in the HTDF will be treated at the WWTP if necessary, before discharging to a wetland (Wetland EE) north of the HTDF. Approximately 13,500 ft^3 of water per day will be displaced from the HTDF during operations. Over the seven to eight year operating period approximately 175,000,000 to 200,000,000 ft^3 of water will be released from the HTDF including water displaced from tailings placement and released from natural precipitation events.

A wetland assessment has been completed for the area north of the HTDF. Wetland EE was investigated in a survey performed by King & MacGregor Environmental, Inc. (KME) in 2007. The survey is documented in Appendix C-1. Wetlands 1 through 8 were delineated by KME in

Revised

Contents *(continued)*

Tables

(Tables located after Tables tab)

Figures

(Figures located after Figures tab)

Appendices

Revised

Kennecott Eagle Minerals Company
Humboldt Mill Project – Inland Lakes and Streams Permit Application
Log of Clarifications and MDEQ Requested Additional Information

Entry Number	Date Revision Issued	Page(s)	Document/Section Number	Description
1	Feb. 6, 2009	3,4 of 7	Appendix A Joint Permit Application	Revised 10A Fill dimensions. Revised 10J pipe diameters and invert elevations information.
2	Feb. 6, 2009	Figs. 1-3, 2-1, 2-3, 2-4	Figures	Updated piping information, fill information.
3	Feb. 6, 2009	Fig. 2-5	Figures	Updated cut-off wall, berm information.
4	Feb. 6, 2009	Figs 2-5a thru 2-5c	Figures	Address details of cut-off wall and berm.
5	Feb. 6, 2009	Fig 2-6	Figures	Deleted
6	Feb. 6, 2009	Figs 2-6a, thru 2-6b	Figures	Address details of mill process water intake structure.
7	Feb. 6, 2009	p. 14, TOC, report	Report	Updated figure references.